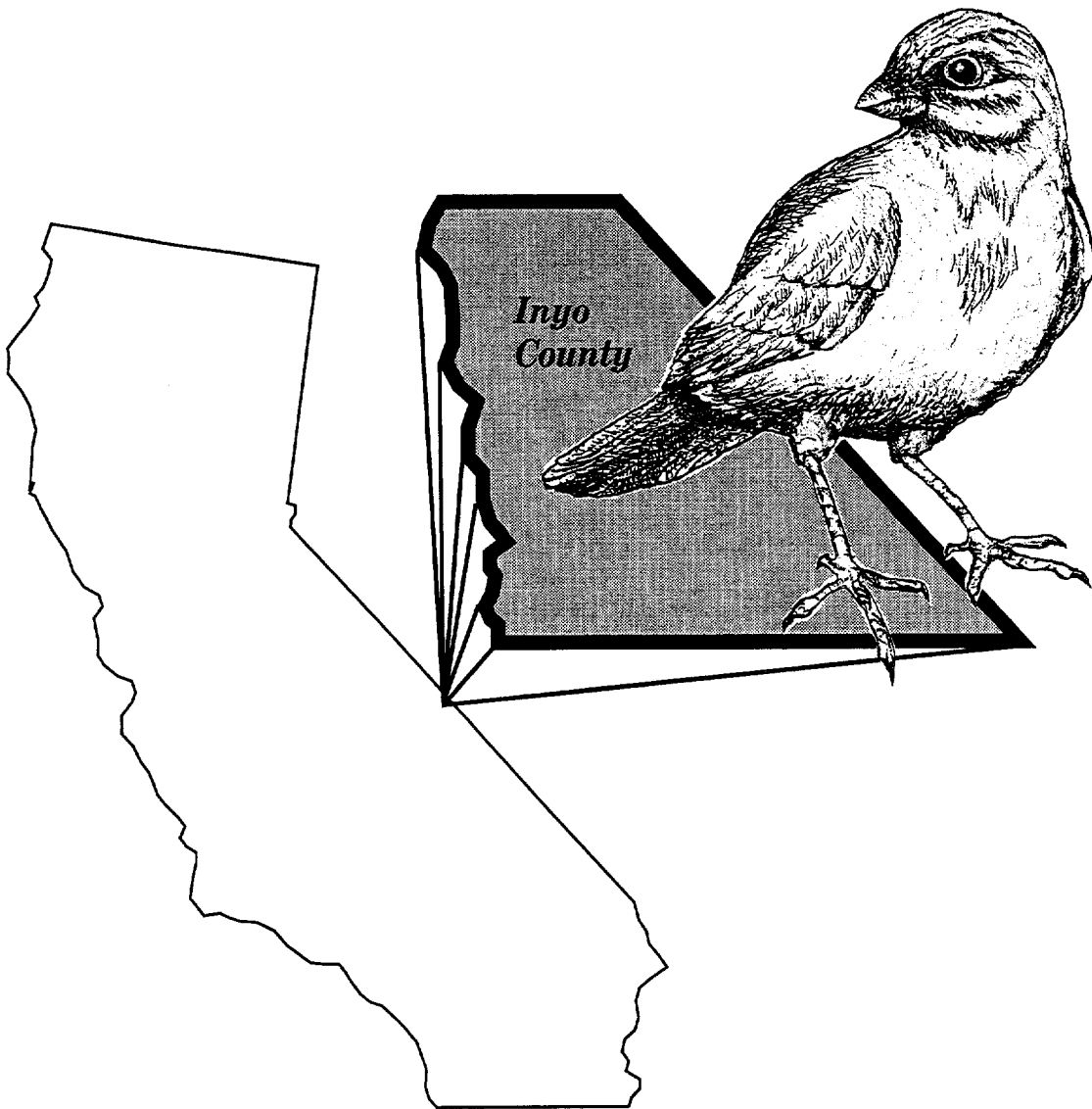


Recovery Plan for Inyo California Towhee

(Pipilo crissalis eremophilus)



RECOVERY PLAN

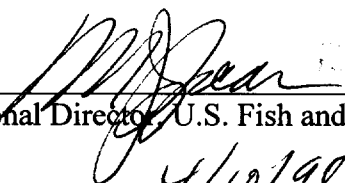
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INYO CALIFORNIA TOWHEE
(*Pipilo crissalis eremophilus*)

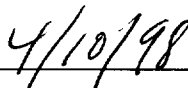
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Literature Citations should read as follows:

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EXECUTIVE SUMMARY

Current Species Status: The Inyo California towhee (*Pipilo crissalis eremophilus*) is federally listed as threatened with designated critical habitat. Fewer than 200 individuals are known to exist.

Habitat Requirements and Limiting Factors: The Inyo California towhee is a desert inhabitant. This subspecies requires areas of dense riparian habitat to provide nesting substrate, protection from predators, and shade from the desert sun. Adjacent upland habitat is their principal foraging grounds and also provides nesting habitat. These riparian habitats have been and continue to be threatened by habitat degradation due to the export of water, mining, recreational and military activities, rural development, controlled burns, and grazing.

Recovery Priority: 9C (Subspecies experiencing a moderate degree of threat, but having a high recovery potential; conservation conflicts with development or other land use activities).

Recovery Objective: Delist

Recovery Criteria: The minimum criterion for delisting the Inyo California towhee is the establishment of a population of at least 400 individuals for a 5-year period. In addition, threats to its habitat must be reduced and managed, and degraded habitat restored and maintained. This would ensure a reproductively self-sustaining population (productivity equals or exceeds mortality rate) distributed throughout the range of this subspecies.

Actions Needed:

1. Identify and monitor all suitable habitat and threats, assess level of habitat degradation, and prescribe recovery actions to restore and protect it as necessary.

2. Determine and monitor the presence and breeding status of Inyo California towhees throughout their range.
3. Enhance suitable habitat by increasing the amount and quality of riparian vegetation.
4. Develop and implement an outreach program for the Inyo California towhee.

Total Estimated Cost of Recovery (\$1,000's):

<u>Year</u>	<u>Need 1</u>	<u>Need 2</u>	<u>Need 3</u>	<u>Need 4</u>	<u>Total</u>
1999	60	60	10	10	140
2000	35	0	10	0	45
2001	35	25	10	0	70
2002	35	0	10	0	45
2003	50	40	10	0	100
2004	20	0	5	0	25
2005	20	0	5	0	25
2006	20	0	5	0	25
2007	20	0	5	0	25
2008	40	25	5	0	70
2009	20	0	5	0	25
2010	20	0	0	0	20
2011	20	0	0	0	20
<u>Total Cost</u>	395	150	80	10	635

Date of Recovery: Delisting should be initiated in 2011, if recovery criteria are met.

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I. INTRODUCTION

A. Brief Overview

On August 3, 1987, the U.S. Fish and Wildlife Service (Service) determined the Inyo brown towhee (*Pipilo fuscus eremophilus*) to be a threatened species and designated critical habitat (U.S. Fish and Wildlife Service 1987). This subspecies is now recognized as the Inyo California towhee (*Pipilo crissalis eremophilus*) (American Ornithologists' Union 1989).

The Inyo California towhee is a desert inhabitant found in the southern Argus Range of Inyo County, California (Cord and Jehl 1979). This subspecies is geographically isolated from other subspecies of the California towhee, *Pipilo crissalis* (Davis 1951). The most recent population surveys for this subspecies indicate that no more than 200 individuals exist (LaBerteaux 1994, Laabs *et al.* 1995). Because of the isolated and inaccessible nature of its range, it is the least known subspecies of the California towhee (Cord and Jehl 1978). This small population is dependent on limited and vulnerable riparian habitat that has been compromised by various human activities that include habitat destruction, export of water, mining, recreational and military activities, and rural development.

B. Taxonomy

The Inyo California towhee was first described by van Rossem (1935) from six specimens he collected in Mountain Springs Canyon, Argus Mountains, Inyo County, California. He classified this population of California towhees as a new subspecies, due to its isolation from other members of the species, and named it the Inyo brown towhee (LaBerteaux 1989). Originally, the species California towhee (*Pipilo crissalis*), whose eight subspecies includes the Inyo California towhee, was considered to be the same species as the canyon towhee (*Pipilo fuscus*) under the name brown towhee (Byers *et al.* 1995); however, recent genetic analyses and evidence from comparisons of anatomical measurements determined

that they should be treated as different species (Byers *et al.* 1995). When the original species, brown towhee (*Pipilo fuscus*) was split into the two species, California and canyon towhees, the name brown towhee was dropped.

C. Species Description

The Inyo California towhee is a grey-brown, sparrowlike songbird. It is medium sized, approximately 17–19 centimeters (7–7.5 inches) in length, and the sexes are similar in size and color (Van Rossem 1935). Inyo California towhees are slightly smaller than the Sacramento California towhee (*Pipilo crissalis carolae*), its nearest geographic relative, whose range extends east to the Sierra Nevada Mountains; there are significant differences in bill length, middle toe, wing and tail lengths (LaBerteaux 1989). Plumage coloration of the Inyo California towhee is a slightly paler ash gray than other members of this species, a difference not readily discernable to the naked eye (Wilbur 1981).

D. Historic Range and Current Population Status

The Inyo California towhee is a relict population of a species that was historically widespread in the southwestern United States and northern Mexico (Davis 1951). This subspecies became restricted to mountain areas in the northern Mojave Desert as a result of prehistoric climatic changes beginning in the Pliocene (Davis 1951). The primary range of the Inyo California towhee is limited to riparian habitats located within the southern Argus Range, Inyo County, California (Figure 1).

From surveys conducted between 1978 and 1986, LaBerteaux (1994) estimated that approximately 111 Inyo California towhees occurred on the Naval Air Weapons Station, China Lake (NAWS). In 1992 and 1994, Laabs *et al.* (1995) surveyed all suitable Inyo California towhee habitat east of NAWS and observed 83 towhees. From this count, they estimated a population of 92 towhees in an area that constitutes approximately one-third of the subspecies' range. Inyo

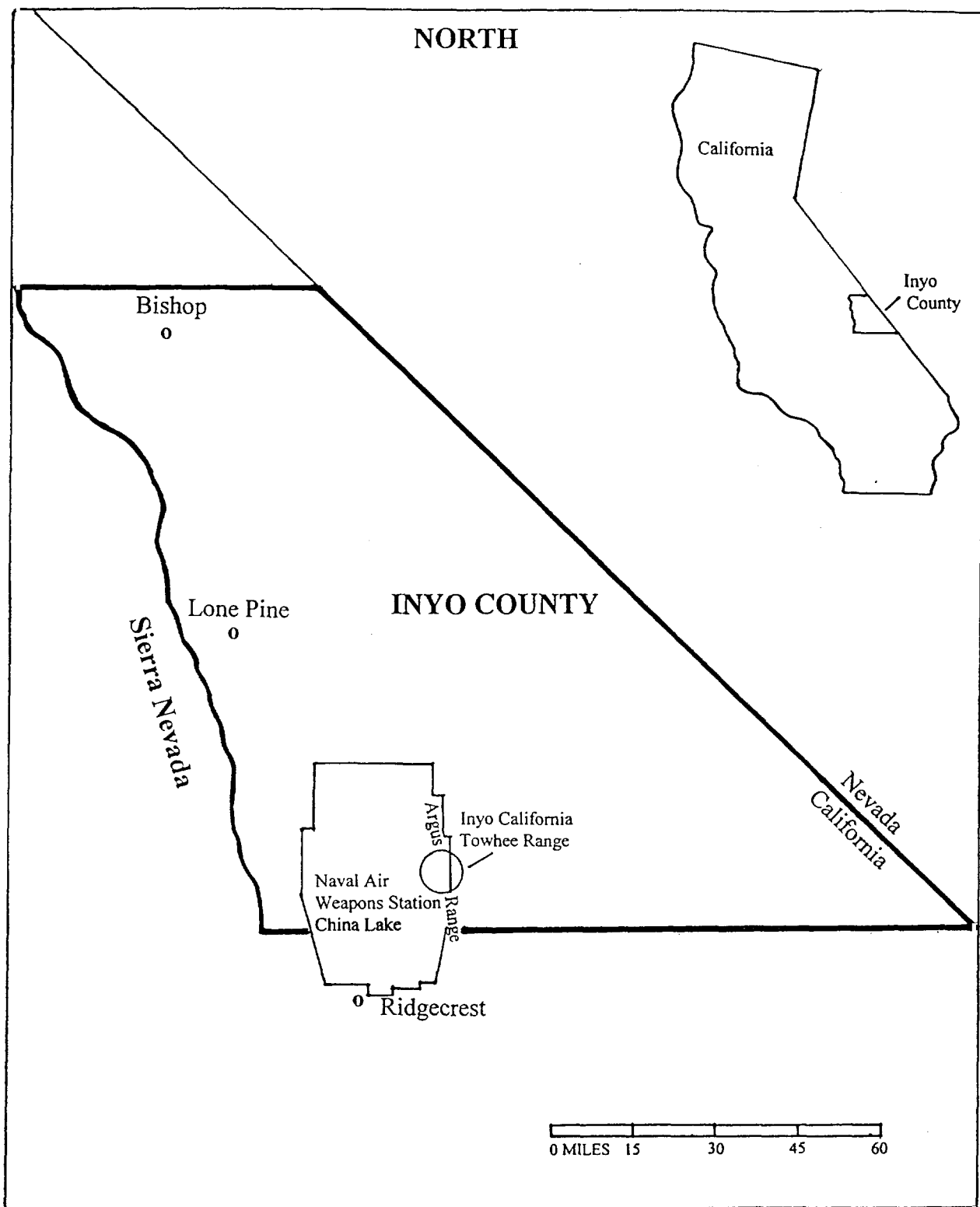


Figure 1. Range map for the Inyo California towhee.

California towhees are located in a 43,008 hectare (107,520 acres) area between LaMotte Spring to the north and Indian Joe Spring to the south. The NAWS supports approximately 68 percent of this subspecies' range. The remaining 32 percent of the population is located on adjacent Bureau of Land Management (BLM) and California Department of Fish and Game (CDFG) land (LaBerteaux 1994).

E. Physical Environment

The Inyo California towhee occurs in the southern Argus Mountains of the Mojave Desert, a north-south oriented range located between the Sierra Nevada to the west and the Panamint and Slate Ranges to the east. These mountains range from approximately 893 to 1877 meters (2680 to 5630 feet) above sea level. The climate is severe, with summer temperatures regularly exceeding 100 degrees Fahrenheit (38 degrees Celsius) accompanied by frequent strong winds and infrequent rainfall. Winter conditions are equally extreme, with temperatures often below freezing and some snowfall. The substrate is mainly decomposed granite with little soil or litter. Surface water is limited to springs and the resulting seeps and creek flow (Wilbur 1981).

F. Habitat

Inyo California towhees nest and forage in areas of dense riparian vegetation dominated by willows (*Salix* spp.), Fremont cottonwood (*Populus fremontii*), and desert olive (*Forestiera neomexicana*) with associated rubber rabbit brush (*Chrysothamnus nauseosus*) and squaw waterweed (*Baccharis sergiloides*). They also nest in shrubs of the upland community adjacent to riparian habitat and use the upland habitat as their principal foraging grounds. This habitat consists of Mojave creosote bush (*Larrea tridentata*) scrub or Mojave mixed woody scrub. Plants associated with the creosote bush community include burrobrush (*Ambrosia dumosa*), allscale (*Atriplex polycarpa*), and indigo bush (*Psoralea*

arborescens var. *minutiflora*). The mixed shrub community consists of a wide variety of plants including antelope brush (*Purshia tridentata* var. *glandulosa*), green ephedra (*Ephedra viridis*), Nevada ephedra (*Ephedra nevadensis*), bush lupine (*Lupinus excubitus* var. *excubitus*), blackbrush (*Coleogyne ramosissima*), bush pea (*Lotus rigidus*), big sagebrush (*Artemisia tridentata*), bladder sage (*Salazaria mexicana*), and brittlebush (*Encelia actoni*) (LaBerteaux 1994).

G. Critical Habitat

Critical habitat, as defined by section 3(5)(A) of the Endangered Species Act of 1973, as amended (Act), includes (1) the specific areas, within the geographical area occupied by the species at the time of its listing under the Act, which contain those physical or biological features (2) essential to the conservation of the species and (3) that may require special management considerations or protection and (4) specific areas outside the geographical area occupied by the species at the time it is listed, which are determined to be essential for the conservation of the species. The term “conservation” as defined in section 3(3) of the Act, means “to use and the use of all methods and procedures which are necessary to bring any endangered or threatened species to the point at which the measures provided pursuant to this Act are no longer necessary.”

The Service considers the conservation of a species in a designation of critical habitat. The designation of critical habitat does not, in itself, result in the recovery of the species, but is one of several measures available to contribute to the conservation of the species. Critical habitat helps focus conservation activities by identifying areas that contain essential habitat features (primary constituent elements) that require special management. The protection given critical habitat under section 7 of the Act (requires Federal agencies to further the purposes of the Act by carrying out conservation programs and insuring that Federal actions will not likely jeopardize the continued existence of listed species or result in the destruction or adverse modification of designated critical habitat), also increases

the protection given to these primary constituent elements and essential areas and provides for the long-term conservation of the species. The protection of these areas may also shorten the time needed to achieve recovery. Designation of critical habitat also increases the awareness of the public and agencies of the species conservation needs.

Section 4(a)(3) of the Act requires that critical habitat be designated to the maximum extent prudent and determinable, concurrently with the determination that a species is endangered or threatened. Critical habitat for the Inyo California towhee encompasses approximately 2,350 hectares (5,600 acres) of habitat near springs, streambeds and uplands. Critical habitat for the Inyo California towhee is located in the following areas: Margaret Ann Springs, Snooky Spring, Ruby Spring, Quail Spring, Benko Spring, Bainter Spring, Indian Joe Spring, Great Falls Basin, Mountain Springs Canyon, Mumford Springs, Austin Springs and three unnamed springs. Desert riparian scrub habitat and adjacent upland desert scrub (primary constituent element) located within these critical habitat areas satisfies all known criteria for the ecological, behavioral, and physiological requirements necessary to conserve this subspecies (LaBerteaux 1989; U.S. Fish and Wildlife Service 1987).

Critical habitat designation does not affect activities on State or private lands unless a federal permit, license, or funding is integral to the proposed activity. With the exception of the Indian Joe Springs critical habitat area, which is owned and managed by the State, all critical habitat areas for the Inyo California towhee are located on Federal lands (Figure 2; see Appendix A for legal descriptions of designated critical habitat areas for the Inyo California towhee).

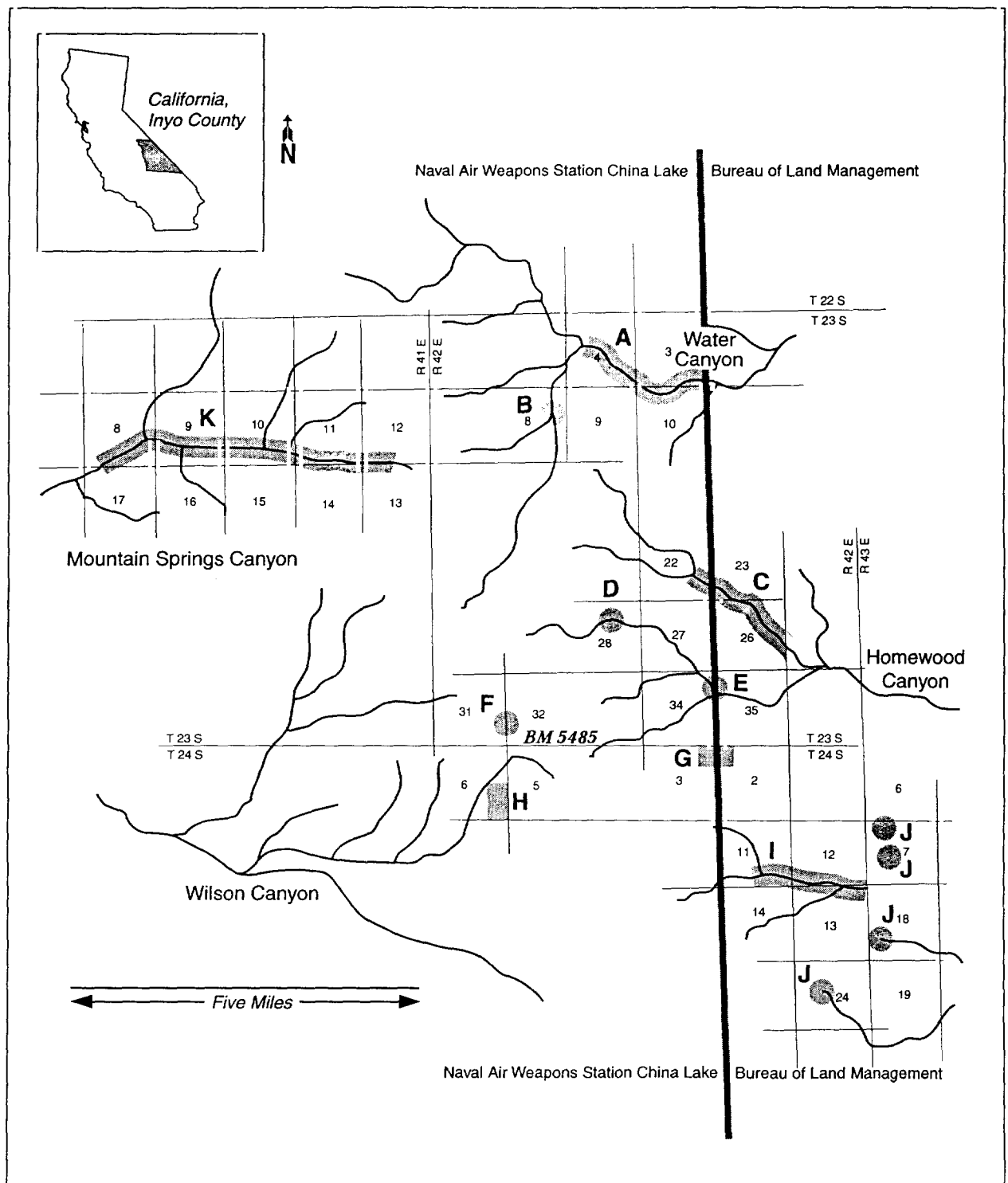


Figure 2. The eleven critical habitat areas designated for the Inyo California towhee (U.S. Fish and Wildlife Service 1987): A, Margaret Ann Spring; B, unnamed Spring; C, Ruby Springs; D, Quail Spring; E, Benko Spring; F, Spring; G, unnamed Springs; H, unnamed Spring; I, Great Falls Basin; J, (North to South) Mumford Springs, Austin Spring, Bainter Spring, Indian Joe Spring; K, Mountain Spring.

H. Life History

The following details of the life history of the Inyo California towhee are based largely on a study conducted by biologist Denise L. LaBerteaux from 1984 to 1986 (LaBerteaux 1989).

Nesting Biology. Inyo California towhees mate for life, and only when one bird dies does the other pursue another mate. Sexual maturity is generally attained in the first breeding season after hatching.

Initiation of nesting coincides with local plant growth and flowering periods, which are influenced by rainfall and temperature that also affect insect abundance. The breeding season generally starts early in spring, with courtship and nest building commencing in March. The first clutches are laid in April, but can be laid as early as late March; replacement clutches may be laid as late as May or early June. If the first clutch fails the pair will recycle, but breeding behavior usually ceases for the pair when the first clutch is successful.

Clutch sizes range from two to four eggs, with four eggs occurring most frequently. Only the female incubates the eggs, but both parents share in the brooding and feeding of the young. Eggs hatch after 14 days of incubation, and the young fledge 8 days after hatching.

Parents continue to feed young for at least four weeks after fledging. The young are fully independent of the parents at six weeks, but remain within their natal nest area through the following fall and winter (LaBerteaux 1989).

Inyo California towhees nest in both riparian habitat and a variety of desert shrubs in adjacent upland communities. Their nests are bulky cups made of thin twigs, grasses, and forb stems with leaves and flower heads. The nests are lined with fine stems, grasses, and hairs. Nests are constructed in a variety of plants that

include shining willow (*Salix lucida* ssp. *lasiandra*), arroyo willow (*Salix lasiolepis*), desert olive, antelope brush, bladder sage, four-winged saltbush (*Atriplex canescens*), and green ephedra (Cord and Jehl 1979, LaBerteaux 1989). These plant types help provide nest sites off the ground that offer protection from ground predators and dense canopies that hide nests from aerial predators. These trees also provide shade from extreme desert temperatures (LaBerteaux 1989).

Territorial Behavior. Territories are defended by both the male and female from intruders year-round, but more vigorously during the breeding season. Territories include nest sites, foraging areas, roosts, and perches. Territories range from 10 to 25 hectares (25 to 62 acres) and decrease in size during the breeding season. Towhees will move outside their territories during the nonbreeding season to forage in the open desert (LaBerteaux 1994).

Foraging Behavior. Inyo California towhees are omnivorous (feeding on plants and animals), opportunistic feeders, foraging primarily in open rocky and sandy desert hillsides on just about any seed or invertebrate they encounter. They will also forage on the low branches of large shrubs and in the leaf litter and foliage of dense riparian vegetation (LaBerteaux 1989). Laabs *et al.* (1992) observed Inyo California towhees foraging up to 600 meters (1,800 feet) from the nearest riparian area, but most often saw them within 100 meters (300 feet). Towhees primarily peck and glean when foraging but will also engage in scratching, flycatching, chasing, and harvesting to find or capture food (LaBerteaux 1989).

Beal (1910) quantified the diet of brown towhees as consisting of 51 percent weed seeds, 28 percent grain, 14 percent invertebrates, and 4.4 percent fruit. Plant food items include seeds from grasses, annuals, perennial forbs, and deciduous and evergreen shrubs and trees. Both adults and young towhees eat seeds year round. Small fruit from willows, desert olive, desert tomato (*Lycium andersonii*), and grasses are consumed by adults in the spring and summer. Insects consumed include unidentified insect larvae and winged and crawling insects such as moths,

flies, grasshoppers, and beetles. Davis (1957) noted that diet changes as availability of food changes. More invertebrates are eaten during the spring and summer months when invertebrates are most active, while seeds are the main food in the towhee's diet during the fall and winter. Nestlings and young fledglings are fed invertebrates, exclusively (LaBerteaux 1994).

Competition. Little is known about competition between Inyo California towhees and other species. Ground foraging birds such as mountain quail (*Oreortyx pictus*), California quail (*Callipepla californica*), and chukar (*Alectoris chukar*) may forage on the same desert hillsides and feed on a common and important food source, seeds. Although spotted towhees (*Pipilo erythrophthalmus*) nest at different heights, they require the same dense riparian shrub cover for nest construction. Spotted and Inyo California towhees do not tolerate each other during the breeding season (LaBerteaux 1984).

Predation. Little evidence is available to indicate that Inyo California towhees are taken in significant numbers by natural predators. Only one record of predation on Inyo California towhees is known. LaBerteaux (1984) observed a gopher snake (*Pituophis melanoleucus*) preying on a nest containing two nestlings. Potential predators include the sharp-shinned hawk (*Accipiter striatus*), coyote (*Canis latrans*), bobcat (*Lynx rufus*), badger (*Taxidea taxus*), gray fox (*Urocyon cinereoagrentus*), and a variety of snake species (LaBerteaux 1984).

Migration. Inyo California towhees are nonmigratory, holding their territories year-round. However, if snow cover does not allow towhees to forage for seeds, they may migrate to lower elevations within their range to find food (Davis 1951).

I. Reasons for Listing

Degradation or destruction of riparian habitat is the primary threat to the continued existence of the Inyo California towhee (U.S. Fish and Wildlife Service

1987). Grazing of grasses, shrubs, and forbs, and trampling of riparian and adjacent upland scrub habitats by feral burros, and to a lesser extent by feral horses and cattle, have significantly reduced the ability of these habitats to support Inyo California towhees (U.S. Fish and Wildlife Service 1987). Plants that are not grazed are trampled, and supporting soils are compacted. Feral burros are particularly destructive due to their practice of creating "burro baths", which can be up to 10 feet in diameter, destroy all vegetation, and create miniature dust bowls (Cord and Jehl 1979). Altering riparian habitat in this manner also encourages the disproportionate growth of native species that are not preferred by this towhee subspecies, such as squaw waterweed (*Baccharis sergiloides*), and the invasion of exotics like salt cedar (*Tamarix* spp.) and carrizo (*Phragmites australis*). The invasion of salt cedar in particular threatens to replace native plant species preferred by Inyo California towhees. Agency records indicate that the controlled burning of willows surrounding desert springs was conducted as late as the 1970's to increase surface water for bighorn sheep (Lee Delaney, Bureau of Land Management, *in litt.* 1997).

Human habitation and activities in desert riparian habitats or in close proximity also threaten the Inyo California towhee's existence. Excessive diversion of water from riparian habitats used by this subspecies is a real and immediate threat. Water diversion is the result of mining activities, recreation, irrigation, livestock, and rural development (U.S. Fish and Wildlife Service 1987). Water is currently being diverted from springs located in three of the eleven designated critical habitat areas (Laabs *et al.* 1992; L. Delaney, *in litt.* 1997).

Off-road vehicle (ORV) use has resulted in the direct loss of desert scrub and riparian habitat. Springs such as Austin, Christmas, Mumford, North Ruth Springs, and Peoples Springs (Nadeau on some maps) that can be reached by vehicle are affected by public use. Peoples Spring, which is accessible by two-wheel drive vehicles, is so badly disturbed that only rushes and grasses grow there, although water is plentiful (Cord and Jehl 1978). Unmanaged recreational

use (camping, hiking, and biking) has resulted in the degradation of some riparian habitats.

J. Conservation Measures

The Inyo California towhee was first provided legal protection in 1980 by the State of California when this subspecies was added to the California State List of Endangered Species (California Administrative Code Title 14, Section 670.5), as authorized by the California Endangered Species Act of 1970 (CERA). The protection provided by the CERA is comparable to protection provided by the Federal Endangered Species Act.

The Inyo California towhee was included on the December 30, 1982 “Vertebrate Notice of Review” (U.S. Fish and Wildlife Service 1982) as a category 1 species. At the time, category 1 included those species for which the Service had substantial information to support a proposal to list the species as endangered or threatened. After evaluating the available information on the status of the subspecies, the Service published a proposed rule on November 23, 1984 (U.S. Fish and Wildlife Service 1984) to designate the Inyo California towhee as a threatened species with critical habitat. On August 3, 1987, the Service determined the Inyo California towhee to be a threatened species and designated critical habitat (U.S. Fish and Wildlife Service 1987).

Conservation measures provided to the Inyo California towhee as a listed species with critical habitat include recognition, recovery actions, requirements for Federal protection, and prohibitions against certain practices (U.S. Fish and Wildlife Service 1987). The most significant provisions relative to the conservation of the Inyo California towhee are found in sections 7(a)(1) and 7(a)(2) of the Act. Section 7(a)(1) requires all federal agencies to use their authorities to further the conservation of listed species. Section 7(a)(2) requires Federal agencies to ensure that activities they authorize, fund, or carry out are not

likely to jeopardize the continued existence of a listed species or to destroy or adversely modify its critical habitat. If a Federal action may adversely affect a listed species or its critical habitat, the responsible Federal agency must enter into formal consultation with the Service. Ten of the eleven designated critical habitat areas for the Inyo California towhee are under Federal ownership; one is located on State lands (U.S. Fish and Wildlife Service 1987). Approximately 2,250 hectares (5,600 acres) of desert riparian habitat and adjacent uplands located in the southern Argus Range have been designated as critical habitat for the Inyo California towhee.

The NAWs, which encompasses approximately two-thirds of the Inyo California towhee's range, has developed a program emphasizing the protective management and restoration of endangered and threatened species (Department of the Navy 1982). This program has reduced grazing and trampling threats to Inyo California towhees by initiating management prescriptions to eliminate burros and wild horses from riparian habitats. The NAWs has also been withdrawing all mineral extraction operations and has closed Navy lands to most public uses.

The BLM administers Federal lands that include approximately one-third of the Inyo California towhee's current range. These Federal lands include seven Inyo California towhee critical habitat areas: five springs and two water courses (Laabs *et al.* 1992). The BLM, recognizing the sensitivity of these critical habitat areas and their importance to the Inyo California towhee, designated the Great Falls Basin Area of Critical Environmental Concern (ACT.) primarily for their protection. In 1987, the BLM issued a management plan for the Great Falls Basin ACC. (Bureau of Land Management 1987). The goal of the plan was to develop a program designed to protect and enhance wildlife habitat and the scenic quality of the ACC.. Management prescriptions that would benefit the Inyo California towhee include the protection of all water sources, removal of burros, management of ORV use, and removal of exotic vegetation.

Under management by the NAWS and the BLM, threats to the Inyo California towhee have been reduced. However, strict adherence to management prescriptions over a longer period of time is necessary before recovery goals can be met.

In 1994 the State of California purchased Indian Joe Canyon, the only parcel of critical habitat under private ownership, and is in the process of developing a management plan that will address the recovery needs of the Inyo California towhee (Denyse Racine, California Department of Fish and Game, *in litt.* 1994).

K. Strategy for Recovery

Inyo California towhees are restricted in range and limited in number and, therefore, susceptible to habitat destruction and degradation. The recovery strategy for the Inyo California towhee will focus on monitoring the population and habitats, eliminating threats to the habitats, and the rehabilitating those habitats that have been degraded or destroyed.

II. RECOVERY

A. Objectives and Criteria

The objective of the Inyo California Towhee Recovery Plan (Plan) is the delisting of the Inyo California towhee. The following provides the criteria for delisting and outlines the requisite actions to recover the species.

Delisting could be considered for the Inyo California towhee when the population has been sustained at a minimum of 400 individuals for a 5-year period. This numerical goal for recovery is based on the estimated carrying capacity, the maximum number of towhees the habitat can support without detrimental effects. At this goal, the population should be reproductively self-sustaining and

distributed throughout its range, the threats to its habitat managed, reduced, or eliminated, and all degraded habitat restored, where possible.

The estimated date for delisting is 2011. These delisting criteria may be revised on the basis of new information.

B. Narrative Outline For Recovery Actions

1. Protect and manage habitat.

The immediate and long-term protection and maintenance of this subspecies will depend on the elimination of all threats to its habitat.

11. Identify all Inyo California towhee habitat, its status, and water sources.

Determine the status of Inyo California towhee habitat. Comprehensive surveys of all known and potential habitat should be conducted.

111. Identify all Inyo California towhee habitat.

All suitable habitat should be surveyed, recorded, and mapped, and ownership identified.

112. Identify all springs.

All springs essential to maintaining Inyo California towhee habitat should be identified and mapped, recording location and ownership.

113. Assess the extent of damage that has taken place as a result of documented threats to each habitat area.

The extent of damage that has occurred should be documented. In addition, the condition of each spring should be recorded, including whether water is being diverted and who holds the water rights to each spring.

12. Eliminate or manage threats to both occupied and nonoccupied habitat.

Schedule semiannual meetings to coordinate existing management plans developed and implemented by the BLM, NAWS, and the CDFG to address all current and potential threats to Inyo California towhee habitat. These plans should include management actions that control or remove threats and restore disturbed habitats to their full potential.

121. Continue feral burro and horse control.

Overgrazing of grasses, shrubs and forbs, and the trampling of vegetation by feral burros and horses is a threat to the Inyo California towhee. Feral burros and horses should be removed or managed in a manner that the Inyo California towhee and the riparian habitat on which it depends is protected throughout its range.

1211. Remove or control burros in the Great Basin ACC..

Although reduced in number, burros are still affecting riparian habitat. All remaining burros should be removed or managed in a manner that protects the subspecies and the habitat on which it depends in the ACC.. An emphasis should be placed on removing burros from the Homewood Canyon area (Benko

Springs) and the Great Falls Basin where Inyo California towhee population levels have the potential to increase (Laabs *et al.* 1992).

1212. Remove or control burros and wild horses in the NAWs.

Although reduced in number, burros and wild horses continue to affect riparian habitat. The existing removal program should be continued and an emphasis placed on protecting all critical habitat areas. Burros and horses not removed should be managed in a manner that protects the Inyo California towhee and the habitat on which it depends.

122. Protect all springs.

The water table and flows should be restored; if necessary, water rights should be secured. Water diversions should be eliminated whenever possible by limiting the use of water for domestic and industrial development. Water diversions, which can include spring boxes, should be removed from the following critical habitat areas: Mumford Spring, Alpha Spring, North Ruth Spring, Bainter Spring, and Indian Joe Canyon.

123. Eliminate or control exotic and invasive vegetation.

A program to remove exotic salt cedar and carrizo, an invasive native, from riparian habitat should be established throughout the range of the Inyo California towhee. Degradation of the riparian habitat at Austin Spring (critical habitat) has allowed carrizo to invade the area. To increase the area's suitability as Inyo California towhee breeding habitat, the carrizo should be removed and replaced with arroyo willows.

124. Restrict noncompatible rural development, mining operations, military activities, and recreational activities.

Development, mining, and military activities should be prohibited within a buffer area of at least 0.8 kilometer (0.5 mile) established around all riparian habitat (Bureau of Land Management 1987).

125. Manage and control off-road vehicle activities that adversely affect towhee habitat.

When practical, barriers should be constructed and signs posted to prohibit vehicle access to sensitive riparian habitats. Unrestricted vehicle access to the Austin, Mumford, and North Ruth Springs has resulted in some damage to the vegetation. Vehicle access into these critical habitat areas should be managed to protect riparian habitat.

126. Control recreational activities.

Camping, hiking, hunting, and biking should be limited to those areas that will not affect riparian habitat. Camping and hiking at Austin Spring should be managed to allow the riparian habitat to recover. The current level of recreation at Indian Joe Canyon should be assessed to determine its effect on riparian habitat.

2. Monitor habitat and status of Inyo California towhees.

The effectiveness of recovery efforts should be frequently evaluated to assess whether the desired results are being achieved. Habitat characteristics and the abundance and distribution of the Inyo California towhee should be monitored using standardized protocols cooperatively developed by the land management agencies.

21. Monitor breeding habitat trends.

A monitoring plan to evaluate the condition of riparian habitat used by breeding Inyo California towhees should also evaluate the effectiveness of implemented management plans and recovery tasks.

211. Develop monitoring protocol.

A protocol to assess the condition of all suitable riparian habitat within the range of the Inyo California towhee should be developed by the cooperating agencies and should be required for all habitat monitoring efforts.

212. Monitor habitat.

The habitat should be monitored at least once every five years using standardized protocol (Task 211).

22. Monitor presence and breeding status of Inyo California towhees.

The abundance and distribution, including breeding pairs, of Inyo California towhees should be recorded throughout its range at all riparian habitat surveyed.

221. Develop breeding survey protocols.

Standardized survey protocols to determine number of pairs, their breeding status, and productivity should be developed and required for all surveys for the Inyo California towhee.

222. Conduct status surveys.

Conduct presence and breeding status surveys within the range of the Inyo California towhee every other year using standardized survey protocols (Task 221).

3. Enhance Inyo California towhee habitat.

To allow the Inyo California towhee population to increase, existing riparian habitat should be enhanced in quality and increased in size whenever feasible.

31. Increase size of existing suitable riparian habitat.

When practical, expand the periphery of existing riparian habitat by creating additional habitat. The following areas should be evaluated for the planting of riparian vegetation: Homewood Canyon, Austin Spring, Shepherd Canyon, Bendire Canyon, Knight Canyon, and Revenue Canyon.

32. Initiate habitat rehabilitation.

Riparian habitat that has been degraded or destroyed by human activities should be returned to its original condition. The following three critical habitat areas should be rehabilitated: Mumford, Austin, and Bainter Springs. Restoring the understory at Mumford and Bainter Springs and planting a willow canopy at Austin Spring should restore these riparian habitats to their full potential.

4. Develop and implement an outreach program to inform the public about the Inyo California towhee, its habitat, and protection needs.

Information addressing the biology of the Inyo California towhee, its habitat needs, and legal protection should be made available for distribution. Currently, information programs are being administered by NAWS, BLM, and CDFG as part of existing management plans that address the protection and restoration of wildlife habitat, with an emphasis on endangered and threatened species.

41. Provide information to the general public.

Information handouts should be distributed to the public recreating within the known range of the Inyo California towhee, particularly in areas designated as critical habitat.

42. Provide information to agency personnel and contractors.

All agency personnel and contractors working within the known range of the Inyo California towhee should be made aware of the presence of this subspecies and the need to protect its habitat, particularly critical habitat.

43. Post areas supporting important and sensitive Inyo California towhee habitat.

Interpretive signs explaining the value of these areas to the maintenance and recovery of the Inyo California towhee should be placed in a manner that will expose the signs to the greatest number of public land users using these areas.

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IV. IMPLEMENTATION SCHEDULE

The Implementation Schedule that follows is a summary of actions and estimated costs for this recovery plan. It is a guide to meet the objectives, identifies agencies responsible for performing each task, and estimates total costs for each task. These actions, when accomplished, will satisfy the recovery objectives. Initiation of these actions is subject to the availability of funds.

Priorities in Column 1 of the following implementation schedule are assigned as follows:

Priority 1 - An action that must be taken to prevent extinction or to prevent the species from declining irreversibly.

Priority 2 - An action that must be taken to prevent a significant decline in species population or habitat quality or some other significant negative impact short of extinction.

Priority 3 - All other actions necessary to provide for full recovery of the species.

Codes used in Implementation Schedule

Ongoing = Task is currently being implemented and will continue until action is no longer necessary for recovery.

Total Cost = Projected cost of task from task start to task completion.

Responsible Parties:

BLM = U.S. Bureau of Land Management

NAWS = Naval Air Weapons Station

CDFG = California Department of Fish and Game

Recovery Plan Implementation Schedule for the Inyo California Towhee										
Priority #	Task #	Task Description	Task Duration (Yrs)	Responsible Party	Total Cost	Cost Estimates (\$1,000.00)				
						FY 1999	FY 2000	FY 2001	FY 2002	FY 2003
		1: Protect Habitat								
2	111	Survey Habitat	Ongoing	BLM/NAWS CDFG	20	10				10
2	112	Identify Springs	Ongoing	BLM/NAWS CDFG	10	10				
2	113	Assess Damage	Ongoing	BLM/NAWS CDFG	10	5				5
2	1211	ACC. Grazing	Ongoing	BLM	25	5	5	5	5	5
2	1212	NAWS Grazing	Ongoing	NAWS	25	5	5	5	5	5
2	122	Protect Springs	Ongoing	BLM/NAWS CDFG	25	5	5	5	5	5
2	123	Exotic Vegetation	5	BLM/NAWS CDFG	25	5	5	5	5	5

Recovery Plan Implementation Schedule for the Inyo California Towhee										
Priority #	Task #	Task Description	Task Duration (Yrs)	Responsible Party	Total Cost	Cost Estimates (\$1,000.00)				
						FY 1999	FY 2000	FY 2001	FY 2002	FY 2003
2	124	Eliminate Development	Ongoing	BLM/NAWS	25	5	5	5	5	5
2	125	Eliminate ORVs	Ongoing	BLM/NAWS CDFG	25	5	5	5	5	5
2	126	Manage Recreation	Ongoing	BLM/NAWS CDFG	25	5	5	5	5	5
		Need 1 Subtotal			215	60	35	35	35	50
		2:Monitor Status								
2	211	Monitoring Protocols	1	BLM/NAWS CDFG	10	10				
2	212	Monitor Habitat	Ongoing	BLM/NAWS CDFG	30	15				15

Recovery Plan Implementation Schedule for the Inyo California Towhee										
Priority #	Task #	Task Description	Task Duration (Yrs)	Responsible Party	Total Cost	Cost Estimates (\$1,000.00)				
						FY 1999	FY 2000	FY 2001	FY 2002	FY 2003
2	221	Survey Protocols	1	BLM/NAWS CDFG	10	10				
2	222	Status Surveys	3	BLM/NAWS CDFG	75	25		25		25
		Need 2 Subtotal			125	60		25		40
		3: Enhance Habitat								
2	31	Increase Habitat	5	BLM/NAWS CDFG	25	5	5	5	5	5
2	32	Habitat Rehab	5	BLM/NAWS CDFG	25	5	5	5	5	5
		Need 3 Subtotal			50	10	10	10	10	10

Recovery Plan Implementation Schedule for the Inyo California Towhee										
Priority #	Task #	Task Description	Task Duration (Yrs)	Responsible Party	Total Cost	Cost Estimates (\$1,000.00)				
						FY 1999	FY 2000	FY 2001	FY 2002	FY 2003
		4: Outreach								
3	41	Public Information	Ongoing	BLM/NAWS CDFG	5	5				
3	42	Agency/ Contractor Information	Ongoing	BLM/NAWS CDFG						
3	43	Post Signs	Ongoing	BLM/NAWS CDFG	5	5				
		Need 4 Subtotal			10	10				
		Total Costs			400	140	45	70	45	100

APPENDIX A

Inyo California Towhee Critical Habitat Legal Descriptions

The following legal descriptions define the eleven critical habitat areas (Figure 2) designated for the Inyo California towhee.

Map Location A: Approximately 3.2 kilometers (2 miles) of streambed and 0.2 kilometer (1/8 mile) on either side of the wash from Margaret Ann Spring proceeding downstream to the eastern boundary of Section 3 near Snooky Spring. The above includes portions of Sections 3, 4, 9, and 10, Township 23 South, Range 42 East.

Map Location B: A circle 0.2 kilometer (1/8 mile) in radius with the spring in Township 23 South, Range 42 East, West ½ of the Northeast 1/4 of Section 8 as the center.

Map Location C: Approximately 3.2 kilometers (2 miles) of streambed and 0.2 kilometer (1/8 mile) on either side of the wash from Ruby Spring (Township 23 South, Range 42 East, Section 22) and proceeding downstream to the boundary between Sections 25 and 26. The above includes portions of Sections 22, 23, 25, and 26, Township 23 South, Range 42 East.

Map Location D: A circle 0.2 kilometer (1/8 mile.) in radius with Quail Spring as the center in Township 23 South, Range 42 East, Northeast 1/4 Section 28.

Map Location E: A circle 0.2 kilometer (1/8 mile) in radius with Benko Spring as the center in Township 23 South, Range 42 East, Sections 34 and 35.

Map Location F: A circle 0.2 (1/8 mile) in radius with bench mark 5485 near the common boundary of Sections 31 and 32, Township 23 South, Range 42 East, as the center and lying within Sections 31 and 32.

Map Location G: Township 24 South, Range 42 East, Northwest 1/4 of the Northwest 1/4 of Section 2 and Northeast 1/4 of the Northeast 1/4 of Section 3.

Map Location H: Township 24 South, Range 42 East, East 1/2 of the Southeast 1/4 of Section 6.

Map Location I: Approximately 2.9 kilometers (1.8 mile) of streambed and .2 (1/8 mile) on either side of Great Falls Basin Wash commencing from the western boundary of East 1/2 of Section 11, Township 24 South, Range 42 East and proceeding downstream along the streambed to the eastern boundary of Section 13. The above includes portions of Sections 11, 12, 13, and 14, Township 24 South, Range 42 East.

Map Locations J: Circles with 0.2 kilometer (1/8 mile) radii around Mumford and Austin Springs in Township 24 South, Range 43 East, Section 7 and Bainter Spring in Section 18 and around Indian Joe Springs in Township 24 South, Range 42 East, Section 24.

Map Location K: Approximately 8 kilometers (5 miles) of streambed and 0.2 (1/8 mile) on either side of Mountain Springs Canyon commencing from the southern border of Section 8 and continuing along the streambed to the point at which Mountain Springs Canyon Wash intersects the eastern boundary of Southwest 1/4 of Section 12. The above includes portions of Sections 8, 9, 10, 11, 12, 13, 14, and 17, Township 23 South, Range 41 East.

APPENDIX B

Peer Review and Summary of Comments Draft Recovery Plan for the Inyo California Towhee

The U.S. Fish and Wildlife Service (Service) initiated the process of writing a recovery plan for the Inyo California towhee (towhee) in 1994. Throughout the development of the plan the Service worked closely with its stakeholders the Navy, Bureau of Land Management (BLM) and the California Department of Fish and Game (CDFG). These stakeholders provided information on the biology, ecology, distribution, and current management of the towhee that the Service incorporated into the draft and final recovery plans for the Inyo California towhee. They provided input on the earlier versions, in addition to reviewing the draft plan. The Service also solicited and received peer reviews of the plan from biologists currently studying the towhee.

In the August 11, 1997 Federal Register Notice of Availability, the Service solicited written comments on the draft recovery plan. During the 60-day comment period, 8 responses were received by the Service. Comments were received from the Navy, BLM, CDFG, three research biologists, and two private individuals. The comments received addressed editorial and data corrections and information updates. No comments addressed concerns relating to policies or issues that required revisions of the recovery plan.

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